

DEPARTMENT OF COMMERCE  
WASHINGTON

MONTHLY NEWS BULLETIN

OF  
DIVISION OF SIMPLIFIED PRACTICE  
NATIONAL COMMITTEE ON METALS UTILIZATION  
NATIONAL COMMITTEE ON WOOD UTILIZATION  
AMERICAN MARINE STANDARD COMMITTEE

March 15, 1927.

No. 24

TABLE OF CONTENTS

	<u>Paragraphs</u>		<u>Paragraphs</u>
Association Activities.....	11,12,13,23	Metals Utilization.....	45
Budgetary Control.....	40	Office Management.....	5
Business & Employment.....	27,42,43,48	Overhead.....	6
Business Papers.....	8	Simplified Practice.....	22,37,44
Competition & Cooperation.....	36	Specifications.....	38
Elimination of Waste.....	17,21,24,28	Standardization and Research .....	1,2,3,7,14,
	30,35,41,		15,18,19,20,
Foreign Standardization.....	10,16,33		25,26,31,39
Inventory & Stock Handling.....	9,32	Thrift.....	4,29
Marine Standardization.....	47	Variety and High Cost.....	34
List of Simplified Practice	Wood Utilization.....		46
Recommendations .....	Pages		

1.

THE SPARE PARTS PROBLEM

R. M. Hudson, Chief,  
Division of Simplified Practice

Too much individuality in sizes, dimensions, etc., of wearing parts, forces the equipment user either to carry a large stock of spare parts, or wait until he can secure the needed replacements from the original equipment maker.

In the first case, the user may regard his spare parts inventory and the cost of carrying it as an insurance against heavy "break-down," or "out-of-service" costs. Nevertheless, the greater the diversity in his equipment, i.e., shop machinery, cranes, electric motors, locomotives, motor trucks, etc., the greater the cost to him of such insurance.

If the equipment user does not maintain a full spare parts stock, but depends, in an emergency, on the equipment maker for quick delivery, there is the risk that the latter may not have the parts in stock and consequently a delay in delivery may occur that increases the "out-of-service" cost to the equipment user. To obviate this difficulty, the user sometimes makes the necessary repairs with his own facilities, or with the aid of local job shops.

This procedure results in a diversion of spare parts business from the original equipment maker, and this diversion, plus the relatively high cost of manufacturing non-current parts a few at time, tends to raise the cost to the user to a point where he is unwilling to pay the manufacturer's price, and in such cases, he will try to find some cheaper way out, say, by making the repairs himself.

Equipment manufacturers sometimes say that competition prevents a fair profit on the original sale, and that the real profits are in the sale of repair or replacement parts. Accurate cost accounting is likely to show there is little if any profit in spares when made "as and when" wanted. Mass-production of spares is as logical and economical as mass-production of original equipment. Both are based on simplification and standardization of product.

When spares are made in quantity, proportionate to the rate of their demand, costs are lowered, adequate stocks strategically located are possible, service of supply is improved, turnover assured, and consequently the equipment maker is likely to get more nearly 100 per cent of the replacement business on his product. Some may not now be getting 50 per cent of the spare parts business on their own product.

Capital tied up in inventory earns no direct dividends. Manufacturing spare parts on a "hand-to-mouth" basis yields little if any profit. Between these extremes is the happy medium of manufacturing the spares in a quantity giving the lowest consistent cost, and controlling the stock on hand by varying the frequency of the issuance of the shop orders (to make that "economical" quantity) according to the rate of demand. In other words, with demand increasing, orders for this constant quantity are placed close together, with demand decreasing, the interval between shop orders is lengthened.

The distributor or the purchasing agent can use this same method of ordering "the most economical quantity to buy" with greater or lesser frequency as the demand warrants, and thus escape some of the disadvantages he encounters in "hand-to-mouth" buying.

The higher the degree of standardization in the renewable parts, and the fewer the variations in size, dimension, etc., the lower the cost to manufacture, stock, distribute, or purchase spare parts; and, coincidentally, the lower the "out-of-service" cost to the equipment user when breakdowns occur. The first step is for the equipment manufacturer to standardize the renewable parts of his product, beginning with those having the highest frequency of replacement.

2. STANDARDIZATION OF AUTOMOBILE PARTS: A recent editorial which appeared in "Automotive Industries" says - "In some respects automobile engineering standardization has been carried further in Europe than in this country. This is not saying that European engineers have surpassed us in standardization work. What they have done is to standardize complete parts, whereas the Society of Automotive Engineers Standards Committee in general has confined itself to the standardization of the joints or connections with other parts.

Among the standards referred to are that of levers for brake linkages, etc., and that of spiders for fabric type universal joints, recently issued by the British Engineering Standards Committee. That such parts should be standardized abroad while their standardization is considered unnecessary here is not without its reason. Most of our manufacturing companies produce on such a large scale that the quantity of dies and other equipment required for such simple parts as levers, brackets, etc., when prorated over the whole production, is very small, and there is often a certain advantage in being able to design these parts specially for the purpose for which they are intended, instead of having to select them from a list of standard parts. On the other hand, if the annual production of a firm is of the order of 1,000 to 2,000 cars, the cost of the dies for numerous small parts is almost prohibitive, and a saving can be effected if forgings of standard design can be purchased from concerns specializing in their production".



3. 50% COST REDUCTION IN MACHINE PARTS: Robert E. Kinhead, in "Manufacturing Industries" reports - "The use of welded steel instead of gray-iron castings for machinery bases, frames, and other parts offers an effective method of reducing manufacturing cost without sacrificing quality. Another advantage of welded steel is that there are no patterns, the work being done directly from drawings."

4. INDUSTRIAL WASTE TAXES THRIFT OF WHOLE NATION: S. W. Straus, President, American Society for Thrift, states: "Notwithstanding our rapid progress in the realms of science, research, and invention, we are still lagging behind in the United States in some phases of thrift. Certain forms of waste permeate nearly every branch of our business activity. In the field of production and distribution, in which we surpass all other nations of the world, there is a tragic amount of waste. One estimate, for example, places our annual waste of coal at 750 million tons; of water at 50 million horsepower; of oil at 1 billion barrels; of lumber at 5 billion cubic feet.

"Our Department of Commerce estimates that the annual waste in transportation equals half a billion dollars, for which, it is said, the shipper is largely responsible. These are indeed heavy penalties to pay. They involve many difficult problems, but we cannot give too much consideration to this uneconomic situation. There must be a full awakening of public consciousness to the need of eradicating this gigantic waste in industry. When we have checked these WASTEFUL METHODS AND PRACTICES great benefits will be felt by all classes of workers; the farmer will receive a larger portion of the consumer's dollar and our standards of living will be still further improved."

5. ELIMINATION OF WASTE IN CLERICAL OPERATIONS: A. P. McIntyre, says in a recent article, "to produce efficiently, four factors must be kept constantly in mind: Time, Space, Energy, Material. Other factors to be considered are the elimination of unnecessary records, the duplication of effort, and lack of effort. Typists and other operators of mechanical devices, when placed in a group, subconsciously fall into the rythm of the group, and a slow operator entering the group will pick up a certain amount of speed. In addition, it is important that each clerk be assigned a full day's work, which is, of course, the result of job analysis and time study work."

6. REDUCING OVERHEAD: An article by W. L. Chandler, Secretary, National Association of Purchasing Agents, which appeared in Factory Magazine for December, 1926, under the heading "Another Step in Standardizing Factory Documents," is of interest to office managers, systematizers, and those who are anxious to reduce overhead. Mr. Chandler tells how some concerns are economizing in the writing of invoices, shop orders, bills of lading, shipping tags, and other documents. A reprint of this article may be obtained from the National Association of Purchasing Agents, Woolworth Building, New York City.

7. STANDARDIZING MOTOR DIMENSIONS: According to "Power" Magazine, "Standardizing work, as approved by the American Engineering Standards Committee or as carried on under the name of "SIMPLIFIED PRACTICE," through the United States Department of Commerce and also as sponsored by other agencies, is going ahead rapidly and is of far-reaching effect. These standards have been a great benefit to progress in practically every line of human endeavor, notwithstanding the argument generally raised that standardization retards progress. There is no doubt that standardizing can be carried to a point where it will retard progress, but up to the present time the tendency has been to keep within conservative limits.

A few simple dimensions, if standardized, would make interchangeability possible, would greatly simplify the problems of the various machinery designers, who have to provide space for the motor in their designs, and would simplify the work of maintenance. These dimensions are the spacing of the holding-down bolt holes, height of shaft centers and size of shaft extension and keyway. The size of shaft extensions and keyways have already been established by the Electric Power Club."

8. **HOW BUSINESS PAPERS CAN HELP PUSH SIMPLIFICATION:** In a recent talk before the annual convention of the Associated Business Papers, Mr. Merritt Lum, publisher of "Factory" Magazine, stressed the opportunities for business papers to help **STIMULATE INTEREST IN SIMPLIFICATION**.

Mr. Lum says in part, "Has there been coordination in our efforts, by which the business press as a unit can mould the thinking of business? Have we joined forces for group movement? Herbert Hoover has established a big basic philosophy of Simplification. He has had help from our papers. But in a desultory way. Simplification hasn't gone over the way it deserves to go over. Yet it is of tremendous importance in prolonging prosperity. The Government isn't going to impose it upon the country. That isn't Hoover's way. But the mighty united force of business opinion would put Simplification over in every line. Have we seen this opportunity?"

9. **ELIMINATION OF WASTE THROUGH SIMPLIFIED STOCK HANDLING:** Production for each man increased 25 per cent; force reduced 18 per cent; an increase in work handled of 12 per cent; shipping time reduced 60 per cent; order-filling errors cut to 1/10 of 1 per cent; and faulty packing damages to 1/100 of 1 per cent -- these are the results of one year's experience with a new layout, especially planned and equipped to give service on repair and replacement parts of the White Company.

10. **STANDARDIZATION OF CARTONS IN GERMANY:** After reaching an agreement in regard to the standard sizes for shoe boxes, the Norm Committee of the Central Association of German Industry has proposed the standardization of other cartons. The Central Association of German Carton Manufacturers, however, recently declared that customers in general lay no value on such standardization and on the contrary often prefer individual cartons for advertising purposes. This particularly applies to the clothing trade, where packing material must be made to conform to fashions which may exist only for a few weeks or months at most.

11. **TRADE ASSOCIATIONS GIVING ATTENTION TO SIMPLIFICATION:** Trade Associations throughout the United States have recently given much attention to the question of standardization and simplification. This is a fundamental step toward stabilizing employment. We believe that if the human side of this whole question were stressed, and if employers and employees generally could be brought to realize that tremendous gains could be made, both in reducing costs for management and investors, and in saving wasted earning power for employees, by the study of the question of payroll fluctuations, some very important steps could be taken in this direction.

12. **TANK MANUFACTURING ASSOCIATION FORMED:** The Steel Tank Manufacturing Association, a new organization of steel tank makers was formed Oct. 13, at Minneapolis. Their membership consists of 35 manufacturers of the Middle West, who do an annual business totaling \$25,000,000. A. G. Feiker, Marshfield, Wis., was elected president; A.J. Kline, Burlington, Iowa, first vice-president; M.B. Armstrong, New London, Ohio, second vice-president, and A.W. Kegler, Minneapolis, secretary-treasurer.



Many trade associations are finding in simplification and standardization an opportunity for substantial, constructive, and cooperative endeavors resulting in tangible benefits to all those engaged in the business they represent and to the public at large.

13. **PRODUCERS RESEARCH COUNCIL:** This Council through their Research Bulletins is cooperating with the Department of Commerce by bringing the Simplified Practice Recommendations to the attention of their members and the trade. Other organizations issuing similar bulletins could render a like service to their respective groups by calling attention to recommendations which have been developed in cooperation with the various industries.
14. **STANDARDIZATION OF STEEL SASH:** How a simplified list of sizes for all useful types of windows helped to stabilize production and sales, was clearly shown in a paper presented by Clarke P. Pond, Vice-President, David Lupton's Sons Co., before the annual meeting of the American Management Association. Among other things he says, "Standardization of sizes and types is almost complete for industrial sash, and our Sash Association is now working through the Department of Commerce under Secretary Hoover to complete the standardization of all types of windows and interest the architects and engineers in universal standardization of openings, which will reduce the cost of designing and engineering on windows, cut stone, terra cotta and all other materials adjacent to window openings."
15. **STANDARD SIGNS AIM OF ENGINEERS:** Standardization of street, sign, and signal markings was one of the chief problems discussed at the recent annual convention of the American Engineering Council. The Committee on street and highway safety is working on the problem of drafting a system of markings, which the council will seek to introduce throughout the country. The work is in line with recommendations of Secretary Hoover's Safety Conference and is expected to be an important step in the campaign to reduce the dangers of highway travel. The council hopes to devise a system that will make all street and highway markings intelligible at a glance to motorists from all parts of the country, and to eliminate many of the unnecessary markings now found on the roads.
16. **SIMPLIFICATION OF AUTOMOBILE TIRES IN GERMANY:** The United States Assistant Trade Commissioner in Berlin, reports that "in German automobile tire practice today there are said to be 17 different sizes, including parallel norms for straight sided and beaded H and high pressure and low pressure tubes. This is regarded as too large a number. Within a few months it is hoped to reduce it to 10. The standardization committee of the German Tire Association believes that there is a rich field for work in the standardization of passenger car tires."

In the United States numerous organizations in the automotive field have gone on record as favoring the principle of simplification and standardization, including car manufacturers, automotive equipment groups, automobile dealers, taxicab associations, tire dealers' associations and others. Many of these expressed the opinion that the efforts now being made toward simplification by committees of the Rubber Association of America, National Automobile Chamber of Commerce, Society of Automotive Engineers and others, could be expedited by use of the cooperative service of the Department of Commerce, such as given in simplification work among other industries.

17. **ELIMINATION OF WASTE NECESSARY:** The "Kardex Service" says - "Every business should take active steps in the reduction and elimination of needless waste. Better methods of management are necessary, and better executive direction. Efficient cost-finding systems, properly functioning purchasing methods, economical production plans and reduction of unnecessary personnel are some of the more important actions that can be taken."

One of the major attacks upon industrial and commercial waste lies in standardization and simplification. The Department of Commerce, through its Division of Simplified Practice, will be glad to cooperate with any interested industry or individual manufacturer in such a program.

18. SIMPLIFICATION IN ORNAMENTAL IRON FIELD: "How We Standardized and Launched a Specialty Item," is the title of an article by James P. McKinney, Jr., Vice-Pres., McKinney Mfg. Co., which appears in "Printers' Ink Monthly" for January, 1927. Early in 1926 this firm brought out a line of forged iron hardware for the home. This forged iron hardware actually was a specialty but Mr. McKinney has this to say: "We had decided it could be standardized and distributed through established hardware outlets, - hardware dealers with builder's hardware departments. In something like six weeks we had obtained a rather complete distribution for the new merchandise, and we then went into consumer advertising. When we finally decided to go ahead with the line, we had firmly fixed in our mind three ideas which must be carried out if we hoped for success. They were: 1. To furnish a line complete in detail; 2. To put into this standardized merchandise the original artisan spirit of forged iron hardware, yet have it meet modern conditions and hardware requirements; 3. To give builder's hardware men a sufficiently wide range of designs to satisfy individual consumer taste, while keeping it standardized so as to be practical."

While commodities which are affected by style, art, design, or true expression of individuality are not generally susceptible to simplification, many manufacturers in the style field have found in Simplified Practice the solution for increased sales, greater turnover, and eventually larger profits.

19. SCIENTIFIC RESEARCH AN AID TO INDUSTRIAL STANDARDIZATION: As a typical example of the aid which the Universities of the country are rendering to industry, the Department of Engineering Research of the University of Michigan has completed or initiated work on 450 projects submitted by manufacturers of the State. The State has made no appropriation for the carrying on of the work of this department other than providing the laboratories, libraries, and members of the faculty, hence each individual firm requesting research aid agrees to pay the cost of supervisory labor, material, and a nominal service charge.

The large manufacturers throughout the Nation are recognizing the benefits derived through research. It is said the Western Electric Company maintains a research staff of over 3,000, with an annual budget of more than \$8,000,000; the General Electric Company and General Motors Corporation each spend more than \$1,000,000 annually for research. Many of the smaller concerns which can not afford to maintain highly paid staffs of research workers are turning to the universities for help along this line.

20. STATE AND MUNICIPAL STANDARDIZING AGENCIES: For the double purpose of increasing the usefulness of the certification plan to public purchasers and improving the contacts with state and municipal standardizing agencies, the Bureau of Standards of the Department of Commerce is making a strenuous effort to compile a complete list of the purchasers for states, counties, municipalities, and public institutions. In this work they are receiving the very helpful cooperation of the National Association of Purchasing Agents, the numerous state leagues of municipalities, state chambers of commerce, the mayors and business managers of the larger municipalities, and the superintendents and business managers of the public schools and hospitals in the more important localities.



21. OVER A BILLION IN WASTE: "Finance and Industry" states, "The British coal strike seems to be over at last, although there are conflicting reports on the point. The fact probably is that the great bulk of the miners have returned to work, leaving only an isolated district here and there still on strike. This often happens in mining controversies, as local questions arise complicating the main one involved in the strike. Now that the miners have gone back, the British people are counting the cost. The most conservative estimate of the cost of the strike is \$1,250,000,000, made by the British Board of Trade. This is a sum almost equal to one-third of the English war debt to the United States. This vast sum was wasted, frittered away in a few months."

22. MR. FIRESTONE'S MAJOR QUESTIONS: There are two great master questions which Harvey S. Firestone of the Firestone Tire and Rubber Company always asks himself, according to a recent bulletin. The first is, "Is it necessary?" and the second, "Can it be simplified?" By asking those two questions and following through with the answers, the company has been able to cut its manufacturing turnover from sixty to fifteen days. The fact that tradition says a certain thing cannot be done means nothing to Mr. Firestone and his associates. They ask, "Why cannot this be done?" and they refuse to rest until they get the answer.

23. SIMPLIFICATION OF HOSPITAL EQUIPMENT: The American Hospital Association has appointed a Committee on Standardization and Simplification of Equipment and Supplies, with the view of enabling hospitals to economize and take advantage of the work which the Division of Simplified Practice is carrying on with various manufacturing groups. The hospital field covers some 7,000 hospitals in the United States and Canada. There is a building program now under way of over \$300,000,000. Many millions are spent in the maintenance and replacement of equipment. The hospital individually is a retail consumer but in the aggregate the field represents a large volume of business. The individual institutions are frequently isolated and would be greatly helped if this Committee could formulate certain appropriate standards in equipment which they could buy with confidence. The cost of hospital building is abnormally high, due to the tradition that the stock articles will not serve as well as something especially designed for hospital purposes. The Chairman of the Committee has suggested a number of items which might be simplified to advantage. The members of the Committee will be glad to meet with any of the manufacturing groups affected by the suggested simplification.

The Division of Simplified Practice would like to suggest that it might be to the advantage of other groups if they could appoint a Committee on Standardization and Simplification, to cooperate with the Department of Commerce in the development of simplified practice recommendations of benefit to their own industry.

24. WASTE FROM ACCIDENTS: Mr. J. E. Hannum, of the American Engineering Council, recently told members of the Washington Society of Engineers that "a five-year study of accident and production conditions in eighteen basic industries points to a considerably increased production, accompanied by a decrease in accidents. The natural inference is that the prevention of accidents has come to be regarded as a factor in increasing industrial production. The United States Steel Corporation has been a pioneer and leader in accident prevention work. Not long ago it issued a report in which it was estimated that as a result of organized safety campaigns within the company over the period from 1912 to 1923, inclusive, more than 35,000 employees were saved from serious injury. The American Car and Foundry Company, another outstanding example in this field, spent approximately \$1,000,000 in fourteen years for accident prevention, but estimates that it saved \$2,700,000 in actual loss by this expenditure.

The cost of industrial accidents throughout the country reaches a staggering total each year, all of which, of course, eventually is passed on to the public."

25. **STANDARDIZATION AN AID TO BUSINESS:** Dr. P. G. Agnew, Secretary of the American Engineering Standards Committee, has the following to say: "Standardization stabilizes production and employment. Standardization makes mass production possible. Standardization eliminates indecision in production. By concentrating on fewer lines, standardization enables the manufacturer to put more thought and energy into design. By bringing out new ideas and facts in order to determine what is best, and to obtain agreement on most questions. Standardization acts as a powerful stimulus to research and development. Standardization is one of the principal means of getting the results of research and development into actual use in industries. Standardization helps to eliminate practices which are merely the result of accident or tradition and which impede development."
26. **STANDARDIZATION OF PRODUCTS:** In an address before the last annual meeting of the American Management Association, H. Keyes Eastman, Factory Manager, The Hills Brothers Company, discussed the "standardization of products" as one of the five outstanding factors in solving their sales, production, and personnel problems. He says "For the past several years The Hills Brothers Company has been making a study of its different products to devise ways and means of standardizing them and eliminating waste. Without going into details I think that perhaps one example of what we did might be told. A year or so ago at one of our Production Committee meetings the Factory Manager explained that in one of our departments we were assembling 55 different varieties of packs. The expense of doing this together with the supplies was from the production viewpoint excessive. I consider that this was a case where the Sales Department was not thoroughly acquainted with the condition. The result was that a subcommittee was appointed by the President which later reported back that these 55 brands could and should be cut down to 25. This has without doubt helped put that department the past year on a more efficient basis. Other departments are being studied the same way."
27. **STANDARDIZATION AND STABILIZED EMPLOYMENT:** In a paper presented before the annual convention of the American Management Association, Merrill R. Lott, Personnel Director, Continental Baking Corporation, discussed the ways and means employed by the Sperry Gyroscope Company to maintain steady employment. On account of the specialized nature of the product this company was faced with the problem of equalizing demands on the various departments so that employment might be stabilized. According to Mr. Lott, "the steps towards stabilization included two distinct angles of approach - 1. Standardization of product. 2. The use of man power. In the standardization of product the sales and engineering departments worked very closely together to design apparatus which would meet the commercial demands. At that time there were several distinct types of Gyro compass equipments being manufactured but the needs were viewed from the standpoint of commercial usage, and arrangements were made to concentrate on two principal types in such a way that the manufacture might be more on the basis of 'for stock' rather than on order."
- Simplified Practice means "concentration on production of items in greatest demand."
28. **ELIMINATION OF WASTE IN FERTILIZER INDUSTRY:** At a special convention of the fertilizer industry, held in Washington, on January 10, this year, a code of trade practices for the fertilizer industry was adopted. One of the six major points dealt with was the **ELIMINATION OF WASTE**. The statement is made that, "Wasteful selling methods should be eliminated. A multiplicity of grades adds materially to the cost of mixed fertilizers and, as



pointed out by the Federal Trade Commission in its investigation of the fertilizer industry, there is no economic justification therefor. A reduction of grades is therefore recommended as a measure of economy. It was further recommended that the manufacturers avoid the practice of making up fertilizer (actually of standard grades) for sale under private brands, and also the practice of compounding special formulae for individual buyers."

29. NATIONAL THRIFT INCREASING: Bank savings of the American people increased a billion and a half dollars within the past year, the number of depositors increased nearly three million, and a new high per capita savings rate for the nation of \$211 was established. These figures, compiled by the Savings Bank Division of the American Bankers Association, have recently been made public by W. Espey Albig, in charge of the division. It is a significant fact that more than half a million of the gain in number came from the increased number of depositors in school savings accounts.

General and widespread prosperity in the United States during the past year caused this great increase in the number of depositors, although in the United States generally the gain in the amount of savings has been less per inhabitant for year ended June 30, 1926, than during the preceding one, said Mr. Albig.

Elimination of waste through Simplified Practice is being recognized on every hand as one of the stabilizing factors which makes for distributed prosperity.

30. SOUTHERN FARMERS PLAN TO CUT WASTE: A recent Associated Press article carries the statement that "the Southern farmers' trouble is not that he gets too little off the farm, but that he wastes too much of what he does get." Acting on this theory, the Association of Southern Agricultural Workers, bent on formulating means of eliminating this waste, estimated at \$2,000,000,000 annually, are considering recommendations. The waste problem was presented by the association's president, Dr. H. M. Soule, head of the Georgia State College of Agriculture, at a recent meeting held in Atlanta. He declared that the loss on the cotton crop alone was a billion dollars last year and that others combined were around a similar figure."

31. SIMPLIFIED PRACTICE ADOPTED BY MACHINE TOOL MANUFACTURERS: Elimination of unnecessary sizes and adoption of a uniform tool-holding element are two forms of machine tool standardization, the value of which is obvious. Both maker and user profit, the maker because he makes fewer types of parts or complete machines and therefore can build in larger lots, the user because one set of tools can be used on several machines, and because he can get a standard machine at a lower price than a special one.

The decision of machine tool builders to put these two forms of standardization, or simplification, into effect is to be commended. It is a big step forward even though the foot has been in the air for more than a score of years since William Lodge urged this very action at a machine tool builders' meeting.

32. COMBINING INVENTORY AND VACATIONS TO ELIMINATE WASTE: A recent exchange calls attention to the fact that "Shutting down the plant for inventory in mid-winter has its disadvantages. It stops production at a season of the year when man feels most like production, and it gives the workmen forced vacations when least wanted. Why not switch the period of inventory to the summer months, and combine it with vacations? For the man who ordinarily does not get a vacation such an arrangement would shift his forced absence to a season when expenses are not so high, and when he would derive physical benefits from the layoff. And it would concentrate the leaves of regular vacationists into one period, instead of dragging them over the whole summer season."

33. GERMANS SPECIALIZE IN ADOPTING MASS OUTPUT: The introduction into Germany of mass production has resulted in a division of manufacturing calling for specialization on the part of the individual machinery plants and the institution of common sales bureaus for the purpose of cost production. This end is usually obtained through the creation of a community of interest between two or more plants producing the same classes of machinery. Each plant limits itself to the manufacture of that class of products for which it is best suited and renounces production of other lines in favor of its former competitors. The unification of sales bureaus and sales practice has been another method widely used to reduce costs in Germany.

34. THE HIGH COST OF VARIETY: In his book "Taking The Guesswork Out of Business", William R. Basset devotes a chapter to "The High Cost of Variety." At the outset Mr. Basset asks the very pointed question - Does it pay for a manufacturer to make or a retailer to stock every variety of product that a customer may want? Again he says "If a business is organized to handle that kind of trade and if it can charge a high enough price, it may pay in a small way, but such a business can practically never be big nor stable. It is always risky, and subject to sudden and heavy losses. Its costs are too high and its turnover too slow.

That every one from manufacturer to consumer suffers in the long run from too many varieties is now becoming realized and some farsighted business men are simplifying their lines. By doing so they are safeguarding their businesses from any risks."

By way of illustration Mr. Basset calls attention to the experience of the Knox Hat Company. "For years hat manufacturers competed to see which could offer the retailer the widest range of styles, colors, weights, and finishes. In 1922 the Knox Hat Company made 9,720 varieties of soft hats alone. That was, on the surface, nice for the retailer, but it ran costs of manufacturing up tremendously. Machines had to be shut down frequently in order to change from one kind of hat to another. An undue number of kinds of raw material had to be carried in stock.

The company made a careful study to see what savings would result if they reduced the number of varieties they made. As a result, they reduced the number of styles and of colors 33 1/3 per cent, and the number of weights from 4 to 3. They also reduced the number of finishes in which hats would be furnished. That was how they cut the varieties in one season from 9,720 to 3,684. Since then they have still further simplified their lines and now make only about 2,000 varieties."

The principle of Simplified Practice is universal. What has proven good for the Knox Hat Company has worked out equally well for a large number of manufacturers who have simplified their lines.

35. ECONOMIC WASTE IN MULTIPLE TENDERS (BIDDING): "Too many bidders figuring the same contract and the economic loss occasioned thereby has been the subject of many discussions," according to the "Heating & Ventilating" Magazine. The practice, however, seems to be going on just as strongly as ever, with the resulting waste in proportion. Just suppose, for a moment, an extreme case of every contractor in the country figuring and putting in a tender for every job in the country. Truly, this is an extreme and impractical supposition, but having 15 bidders on a small-sized job is proportionately just as extreme and should be just as impractical. A typical instance is quoted by the "Pacific Plumbing and Heating Journal" where 15 bidders presented tenders on a heating and ventilating job amounting to about \$30,000. Assuming each bidder spent - including all his expenses -



about \$100 to arrive at his price, the total cost of figuring the work amounted to \$1,500, whereas if the figuring had been left to three or four firms the cost would have been only \$300 or \$400.

6. **COMPETITION AND COOPERATION:** Mr. F. M. Feiker, former assistant to Secretary Hoover of the Department of Commerce, resigned January 1 from the Society for Electrical Development to become Managing Director of Associated Business Papers. While with the Society, Mr. Feiker did an outstanding job in organizing competitive commodity promotion campaigns for groups of manufacturers, proving out his belief that competition and the cooperation development of ideas and markets are not antagonistic forces in industry, but coordinate and supplement influences. In short, cooperation should be "the working partner of competition in every field of business activity."

Manufacturers in various industries are finding in Simplified Practice and Standardization a medium for cooperation to eliminate waste and thus more effectively to meet competition.

7. **INTEREST IN SIMPLIFICATION INCREASING:** According to "Manufacturing Industries", waste elimination still holds the center of the industrial economy stage. The interest of manufacturers in simplification seems to be increasing; more copies of the "Waste in Industry" reports were sold last year than in any recent previous year; double the number of persons attended 1926 Management Week meetings on waste elimination than attended similar meetings a year before. Saving, reducing losses, and preventing wastage are getting popular. Yet there are great possibilities still remaining.

8. **SAVINGS THROUGH BUYING TO SPECIFICATION:** Buying materials to specification instead of by trade name promises an annual saving of at least \$1,000,000,000 to American manufacturers. This is the conclusion of a research specialist, formerly connected with the United States Bureau of Standards. He bases this estimate on the fact that the Bureau saves the United States Government \$100,000,000 every year on its purchases at a cost of only \$2,000,000 to the Bureau.

9. **STANDARDIZATION OF OIL FIELD EQUIPMENT AND METHODS:** At the annual meeting of the American Petroleum Institute, progress was reported by all committees on standardization of Oil Field Equipment and Methods. The reports which were adopted are to be published in the official handbook of the Institute. Transmission standards prepared by Committee on Standardization of Rotary Drilling Equipment, and previously adopted by the board of directors, were approved for publication as one of the outstanding developments in this work. Other specifications were approved for rotary drilling taper joints, wire rope and manila cordage, pumping engine equipment, rigs and derricks, pipe standards, belting, boiler standards, oil storage tanks, etc.

10. **ADVANTAGES OF BUDGETARY CONTROL IN WASTE ELIMINATION:** In discussing "Management's Part in Waste Elimination" before the Management Week Meeting in Chicago, Harold V. Coes, Vice-Pres., Belden Mfg. Co., mentions the following advantages of a budget. "1. It determines profits. 2. It forces coordinated planning. 3. It coordinates the organization. 4. It insures team work. 5. It brings about coordination of sales and production. 6. It enables better control of sales and production fluctuations. 7. It brings about better operating efficiency. 8. It forces standardization. 9. It enables control and reduction of inventories. 10. Costs are used to control and not accumulate as a matter of history. 11. It enables the control of unauthorized expenditures. 12. It enables the control of financing. 13. It enables the control of expenses. 14. It provides a goal for the organization. 15. It provides standards of performance. 16. It provides

measures of attainment and justice in rewards. 17. It provides means for control of and elimination of wastes and losses. We can then budget waste allowances in production, scrap and the like. Standardize miscellaneous supplies, eliminate various sizes and grades so as to concentrate buying power on reduced variety and larger lots."

41. IMPROVED USE OF MATERIALS AS MEANS OF ELIMINATING WASTE: John A. Willard, in "Iron Trade Review" calls attention to "improved use of materials as chief means of eliminating waste in industry." He says, in part, that "The conduct of business in this country during the past 30 years has been undergoing a marked change. During the earlier part of the period efforts of management were directed mainly to improvement of machine effectiveness. This period was followed by another era for the development of man-power effectiveness, as represented by the work in which Frederick W. Taylor was a pioneer. Immediately following there came a period of management effectiveness, in which the hidden wastes of management were particularly sought out and remedies proposed. At present, distribution is considered the major problem of business men, and there is just beginning a period of increasing the effectiveness of invested or borrowed capital."

Mr. Willard says further "The profits of tomorrow are coming out of wastes of today. \* \* \* In the past 30 years management in general, and industrial engineers in particular, have been neglectful of progress in the reduction and control of waste in industrial materials. The industrial engineer is particularly blameworthy for this condition because industry looks to him for progress in management efficiency. He must pioneer in the field of industrial management or yield the floor to that energetic group of plant executives who must have an answer to their pressing problem of making both ends meet, with a percentage to spare.

This problem was first recognized in a practical way and steps taken to combat the conditions by the appointment in 1921 of the Hoover committee on elimination of waste in industry. The report of the committee was of far-reaching importance, but it has taken too long for this work to gain the real impetus which it deserves."

Simplified Practice as sponsored by the Department of Commerce offers an effective cure for the waste disease.

42. "BUILD YOUR FENCES FOR 1928 THIS YEAR": The following excerpt taken from a recent editorial in "Sales Management" will be of interest. "Although most of the bankers and leading financial men are talking optimistically about the continuation of good business through the first half of 1927, some are advising their correspondents and clients to get their affairs in the best liquid condition for the spring of 1928. Perhaps it is only the bankers' characteristic caution and inherent fear of an election year that prompts their warnings. Perhaps they fear easy money may encourage speculation, or that an unfavorable farm situation will ultimately effect business. Perhaps they are worried over the shrinking profits and the steadily declining price curve. But whatever it is, the more far-sighted are passing the word along to "prepare" and the wise sales manager will not let the warning pass unheeded. He will take advantage of the prevailing favorable sales situation to strengthen his sales organization and dig himself in with good advertising. He will analyze his sales costs and be prepared to apply the knife quickly should the need arise. He will build up his mailing lists, weed out the dead wood and complete his coverage. In short, he will do everything that a good general would do on the eve of a critical engagement. He will think victory; he will keep the offensive, but he will build up behind him a strong second and third line of defense so that should the situation turn unfavorable, he will not be caught with his flanks exposed."



Many sales managers have found Simplified Practice helpful in clearing the line of slow sellers, thus enabling concentration on the fast movers with consequent increase in volume, lower costs of selling, and better profits.

### 13. WHAT OF 1927?

"What are the definite steps that should be taken in 1927 to improve the place of the industrial distributor?" and "What do you plan to do to improve conditions in your business?" At the opening of the new year these two questions were put to a number of leading distributors by "Industrial Distributor and Salesman." It is interesting to note how leading distributors view the situation as it exists today, and what they plan to do to guarantee profits in 1927. In replying to the questionnaire Mr. Charles T. Bush says, "The simplification program of the Department of Commerce has been very helpful. It has enabled dealers to reduce the amount of money invested in many items." Again, Mr. Walter W. Peacock, Manager, E. S. Stacy Supply Co. Springfield, Mass, says, "Another item of importance is to keep close watch of inventory. We refuse absolutely to stock any material which does not give us a reasonable turnover. For this reason we have discarded some excellent lines." According to E. G. Vonnegut, Vice-Pres., Vonnegut Hardware Co., Indianapolis, his company will work for fair profits and increased turnover which is to be effected by means of a better stock, control.

44.

## DIVISION OF SIMPLIFIED PRACTICE

### Progress in Simplification

Preliminary conferences, general conferences, and revision conferences have recently been held under the auspices of the Division of Simplified Practice in cooperation with the following groups:

**BANK CHECKS, NOTES, ETC.:** The General Conference of December 4, 1925, in establishing standards of size and arrangement of bank checks, notes, drafts, and similar instruments, decided that the recommendation as then drafted should be effective for a minimum period of two years. On December 6, 1926, the Standing Committee which was appointed at the general conference, met at the Department of Commerce for the purpose of reviewing the results accomplished during the past year, and to consider plans for securing a more widespread adoption of the standards. The deliberations covered (1) adherence; (2) reaffirmation; (3) envelope sizes; (4) publicity. A copy of Simplified Practice Recommendation #50, covering standard sizes for bank checks, drafts, notes, etc., can be had for 5¢ upon request to Superintendent of Documents, Government Printing Office.

**MILK AND CREAM BOTTLES AND CAPS:** The Joint Standing Committee on Simplification of Milk and Cream Bottles met at the Hotel Astor, New York City, on February 8th to reconsider the action taken on September 8th with regard to overall height and body diameter of the half-pint bottle. After some discussion regarding diameters and weights, a revised recommendation was adopted as follows: "In accordance with the unanimous action of the joint conference of manufacturers, distributors, and users of milk bottles, and further amended by the joint Standing Committee at its meetings in New York City on September 8, 1926, and February 8, 1927, the United States Department of Commerce, through the Bureau of Standards, recommends that in respect to bottles used in the sale of milk and cream, the quarter-pint size be eliminated." Also definite sizes, capacities, and dimensions of the quart, pint, and one-half pint bottles were recommended. One size of cap was considered sufficient for

all requirements. These revised recommendations are to go into effect March 1, 1927, subject to regular annual revision by the joint conference.

**TISSUE PAPER:** The standing committee, at its meeting on February 23, 1927, reaffirmed the existing schedule (Simplified Practice Recommendation No. 46) without change, for the year commencing March 31, 1927.

**RAZOR BLADE PACKING:** At a recent conference of razor blade manufacturers, a resolution was adopted by those present to develop a simplified practice recommendation covering the packing of razor blades by the decimal system. The Division of Simplified Practice was requested to call a general conference to put such a recommendation through the Division's regular procedure.

**COMPOSITION BOOKS:** The manufacturers of composition books have expressed a desire to have something accomplished in the way of eliminating waste and reducing the number of lines. At the meeting of a special committee held in Springfield it was voted to ask the Department of Commerce to send out a questionnaire to obtain data as to what weights and qualities of paper are now being used, also what kinds and colors and what variety of counts or number of sheets they are now putting into their composition book line.

**INVOICE FORMS:** A simplified invoice form combining the best features of both the uniform invoice and the National Standard Invoice forms, and adequately providing for both unit and multiple billing was unanimously adopted on February 16, 1927, by the joint committee or representatives of both forms.

It is expected the new form will go into use as soon as present stocks of the earlier invoices are exhausted. The joint committee voted on a two-year period of trial and use, ending February 16, 1929, at which time a review of results will be made to determine what modifications or refinements, if any, are then necessary.

The committee likewise voted to increase its membership from 5 to 9. The expanded committee will consist of W. L. Chandler, Secretary of the National Association of Purchasing Agents, as Chairman; James C. Bennett, Comptroller, Westinghouse Electric Co., Vice Chairman; C. M. Finney, Vice President, Worthington Pump & Machinery Corporation, Addison Boren, Treasurer, Yale & Towne Mfg. Co.; Lew Hahn, Managing Director, National Retail Dry Goods Association, and three other members to be mutually acceptable to the six above named. The Division of Simplified Practice will, in the near future, send out sample forms of the simplified invoice for acceptance by the business interests of the United States and also for their guidance in ordering future stocks.

**ELECTRICAL REFRIGERATION INDUSTRY:** During the past month the committee has had correspondence with about forty manufacturers of electric refrigerating apparatus, of domestic refrigerators and of artificial ice. Two of the larger firms indicated a desire to sponsor a movement for simplification of over-all dimensions of ice boxes, ice compartments, and electric refrigerating units made to fit into domestic ice boxes. There seems to be a majority opinion that simplification can be accomplished, particularly in reducing the number of different sizes of ice compartments. The maximum results can be secured by the cooperation of all the above groups, and of the manufacturers of tanks and ice cans used in making artificial ice.



**FOUNDRY EQUIPMENT:** The attention of some manufacturers of foundry equipment was called to an article recently published in "The Foundry" regarding possible standardization of foundry flasks. One large manufacturer suggested that certain ordinary types of flasks, particularly floor flasks, now made in an enormous diversity of sizes, could be simplified by cooperative action. The committee has since heard from several more manufacturers of flasks and is investigating the whole field. This applies also to certain other items of foundry equipment, such as air hoists, sand handling apparatus, and core ovens.

**NEW BILLET STEEL REINFORCING INDUSTRY:** Invitations have been issued by the National Committee on Metals Utilization to all organized consumers, technical experts, distributors, and manufacturers interested in New Billet Steel for Concrete Reinforcement to attend a general conference in Washington on March 19th. It is the intention of this conference to consider the results of a survey recently conducted by a Committee of the New Billet Steel Reinforcing Industry with a view to drawing up some specific recommendations.

**METAL SPOOL AND REEL INDUSTRY:** The Simplified Practice Committee of the Metal Spool and Reel industry has completed its survey and is now preparing a recommendation for the consideration of a general conference of all interests.

**PORCELAIN INSULATORS:** The Simplified Practice Committee of the One Piece Porcelain Insulator Industry has completed its survey and is now preparing a recommendation for the consideration of a general conference of all interests.

**FLASHLIGHT INDUSTRY:** The Simplified Practice Committee of the Flashlight Industry has completed its survey and is now preparing a recommendation for the consideration of a general conference of all interests.

**AUTOMOTIVE INDUSTRY:** General Conferences on Spark Plugs, Piston-Ring Oversizes, Brake Lining and Taper Roller Bearings were held in Detroit on February 2nd and 3rd. These conferences approved the standards which had been submitted as tentative Simplified Practice Recommendations by the Society of Automotive Engineers. At the present time all manufacturers, distributors, and users are being asked to submit their signed acceptances of these recommendations. Cooperation on the part of all interests will bring about more general adherence to the approved standards and should result in benefits to all concerned.

**CONTAINERS FOR BOLTS AND NUTS:** The Committee for Standardization of Packing of the Bolt, Nut, and Rivet Manufacturer's Association has requested the National Committee on Metals Utilization to submit tentative recommendation to a general conference of manufacturers, distributors and users of bolts for its consideration and adoption. A general conference has been called for March 23, 1927, to meet at the Department of Commerce.

**GENERAL ITEMS OF INTEREST:** Two interesting examples of simplification, carried to the ultimate degree, recently came to the attention of the committee. The manufacturers of containers of compressed gas have reduced their line to one single size of tank for a certain gas. A large firm manufacturing complete electric refrigerating cabinets has reduced its line to a single model and size, and discontinued the manufacture of all other sizes.

The question of the effect of simplification on reducing prices to the consumer is frequently brought up. While in some industries savings through simplification do not reach the consumer immediately or directly, there are a number of other industries, particularly those selling direct to the consumer, where savings are immediately reflected in

selling prices. This is sure to be the case in a highly competitive industry. A manufacturer of a widely distributed domestic commodity recently made the statement that if the manufacturers in his line could cut down their range of sizes to those carrying 85% of the business, a flat out of 20% could be made in retail selling prices. The total of volume of business in this particular industry is over fifty million dollars a year.

As an example of the splendid cooperation being received from manufacturers in emphasizing simplified lines, we are pleased to call attention to the following: At the foot of every appropriate page (there are six such pages) of the Cohoes Rolling Mill Company's catalogue of wrought iron pipe, the following note appears.

Note: Above sizes conform to the U. S. Department of Commerce, Simplified Practice Recommendation No. 57, other sizes (4 1/2, 7, etc.) furnished on request, will be considered "Special."

In "Walworth Log" for February, 1927 (published by Walworth Company) there is a 1 1/2 page reference to the Simplification movement in general, and to Simplified Practice Recommendation No. 57, in particular.

46.

#### NATIONAL COMMITTEE ON WOOD UTILIZATION

The Executive Committee of the National Committee on Wood Utilization met at 10 a.m. on Tuesday, January 11, 1927, in Room 319, Department of Commerce.

Those present were: Colonel W. B. Greeley, Dr. Hugh P. Baker, Dr. Wilson Compton, Mr. John Foley, Mr. C. S. Smith representing Mr. B. S. Warren, Mr. Axel H. Oxholm, Mr. Dudley F. Holtman, and Mr. Edward Eyre Hunt. At the afternoon session Mr. A. Trieschmann was also present.

The status of all projects was discussed. It was announced that the bulletin on Short Lengths was published on January 1, and that a very gratifying distribution has already been secured.

Among the new projects discussed were (1) the possibilities of publishing a booklet listing various grade marks of lumber in use; (2) a study of gang sawing; (3) the use of stained lumber; (4) a survey of nonutilized raw materials; (5) distribution of preserved wood; (6) mining timber; (7) small dimension stock; and (8) wood flour and its uses. Additional members to the National Committee from the fiber container group, the wooden box group, and the small dimension group, were approved.

It was agreed that the General Committee should meet in May and the Executive Committee should hold its next meeting during the first ten days in March.

This committee was awarded a gold medal for its exhibit at the Philadelphia Sesqui Centennial Exposition. The cooperation of many forest products manufacturers in the United States was secured and the exhibit showed varied phases of wood utilization.



47.

AMERICAN MARINE STANDARDS COMMITTEE

The subject committee on "Shafting etc." held a meeting at which final conclusions were reached regarding a number of details effecting proposed standards of propeller shafting, propeller hubs, etc.

The subject committee on "Metallic Packings for Condenser Tubes" held its first meeting, and a number of points were agreed upon as basis of a proposed marine standard specification.

The subject committee on "Joiner Hardware" held a meeting at which the basis of proposed marine standards was outlined.

Distribution was made of copies in preliminary form of approved standards for cast steel mooring bitts; pressure and vacuum gauges for ships; list of essential machinery spare parts; equipment and methods for safety on ships, and instructions for operation, care, and upkeep of water tube marine boilers.

There were submitted to the membership for critical comment preliminary drafts of proposed standards for pilot ladder; wooden and metal racks for fire hose, and for life boats.

Comments continue to be received from abroad as well as from the United States regarding the proposed standard rules for stability and loading of ships. These are being referred to the special committee on the subject.

Initial steps were taken for the printing of 19 of the approved marine standards as Division publications.

48.

BUSINESS CONDITIONS AND COMMODITY MARKETS

Dr. N. J. Silberling, who conducts a department on this subject in the Bulletin of the Purchasing Agents Association of Northern California says, "The general business situation in the United States during 1926 presented a number of striking features. The business cycle which began in the middle of 1924 reached a sustained high level for practically two years. This level above what we may consider the trend of normal growth has been almost equal in magnitude to previous times of boom conditions, and yet many of the dangerous characteristics of a typical old-fashioned boom have been absent. Commodity prices have been falling rather than rising; there has been remarkably little strain on the money market; business has proceeded rapidly and yet plans appear to have been made carefully and over-commitments have been avoided in most lines. If we are to have a marked break in the rate of basic production it will affect many markets for finished goods through the fact that industrial earnings will be decreased. This is of great importance because of the growth and prevalence of the installment selling system. Installment selling, while now very general, appears not to have increased in volume during recent months, but should there be any marked tendency to exploit further installment practices on a broad scale it would be a danger signal of the first importance. It would signify the piling up of goods which can not easily be sold through increase of commercial borrowing and the result would have an effect on money rates and would still further react upon those industries just mentioned which have traveled so rapidly and so far on an easy money market. In sum, any tendency for reducing the pace of industrial production must be carefully watched, because of the cumulative tendencies which lessened buying power and an upward revision of the money market would involve.

Supplement to  
Monthly News Bulletin No. 24

-----  
SIMPLIFIED PRACTICE RECOMMENDATIONS

Proposed, Approved and Accepted, by Industrial Groups,  
under the auspices of the  
DIVISION OF SIMPLIFIED PRACTICE  
of the  
DEPARTMENT OF COMMERCE

The activities of the Division are guided by a planning committee as follows:

- B. H. Ackles, President,  
National Supply & Machinery Distributors Assn.,  
Detroit, Mich.
- W. L. Chandler, Secretary,  
National Association of Purchasing Agents,  
New York, N. Y.
- E. W. McCullough, Manager,  
Department of Manufacture, Chamber of Commerce of the United States,  
Washington, D. C.
- A. W. Shaw, President,  
A. W. Shaw Company,  
Chicago, Ill.
- Brig. Gen. H. C. Smither, Chief Coordinator,  
U. S. Bureau of the Budget,  
Washington, D. C.
- A. A. Stevenson, Vice President in Charge of Manufacture,  
Standard Steel Works Company,  
Philadelphia, Pa.  
American Engineering Standards Committee.
- L. W. Wallace, Executive Secretary,  
American Engineering Council,  
Washington, D. C.



Note: Publications are available for all items on following list except those indicated by (\*), and may be obtained from the Superintendent of Documents, Government Printing Office, at the price shown. Do not send stamps.

S.P.R. No.	Item	Price	Reduction in Varieties		Per cent
			From	To	
1.	Vitrified Paving Brick Fourth Revision Conference.....	5¢	66	4	94
2.	Beds, Springs, and Mattresses.....	5¢	78	4	95
3.	Metal Lath.....	5¢	125	24	81
4.	Asphalt (Penetrations).....	5¢	88	9	87
5.	Hotel Chinaware.....	5¢	700	160	77
6.	Files and Rasps.....	5¢	1,351	496	65
7.	Rough and Smooth Face Brick.....	5¢	75	2	97
	Common Brick.....		44	1	98
8.	Range Boilers.....	5¢	130	13	90
9.	Woven Wire Fencing.....	5¢	552	69	87
	Woven Wire Fence Packages.....		2,072	138	93
10.	Milk Bottles and Caps.....(Bottles).....	5¢	49	4	92
	(Caps).....		10	1	90
11.	Bed Blankets (Sizes).....	5¢	78	12	85
12.	Hollow Building Tile (1st Rev.).....	5¢	36	20	44
13.	Structural Slates for Plumbing and Sanitary Purposes..	5¢	Average Reduction		84
14.	Roofing Slates.....	5¢			
	Descriptive Terms, Thicknesses and Sizes.....		98	48	51
15.	Blackboard Slates.....	5¢			
	Slab Heights and Sizes.....		251	25	90
16.	Lumber (Second Revision).....	15¢	Standard Nomenclature Grades and sizes for soft-wood lumber.		
17.	Forged Tools.....	5¢	665	351	47
18.	Builders Hardware (Items).....	10¢			26
	(Finishes).....				71
19.	Asbestos Paper.....	5¢			
	Sizes, Widths, Weights of Rolls.....		14	8	43
	Asbestos Mill Boards.....				
	Sizes, Thicknesses.....		10	5	50
20.	Steel Barrels and Drums.....	5¢	66	24	64
21.	Brass Lavatory and Sink Traps.....	5¢	1114	72	94
22.	Paper.....	5¢	Indeterminable		
23.	Plow Bolts.....	5¢	1,500	840	44
24.	Hospital Beds.....	5¢			
	Length.....		33	1	97
				1 Standard	
	Width.....		34		91
				2 Specials	
	Height.....		44	1	98
25.	Hot Water Storage Tanks.....	5¢	120	14	88
26.	Steel Reinforcing Bars.....	5¢			
	Cross-sectional areas.....		40	11	73

27.	Cotton Duck (Widths and Weights).....	5¢	460	94	80
28.	Sheet Steel (First Revision).....	5¢	1,819	263	85
29.	Eaves Trough and Conductor Pipe.....	5¢	21	16	24
30.	Terne Plate (Weights).....	5¢	9	7	22
31.	Loaded Shells (First Revision).....	5¢	4,076	1,758	57
32.	Concrete Building Units, (Length, Width, and Height of Blocks, Tile, and Brick).....	5¢	115	24	80
33.	Cafeteria and Lunch Room Chinaware .....	5¢	668	177	73
34.	Warehouse Forms.....	10¢	Thousands	15	
35.	Steel Lockers.....	5¢	65	17	74
36.	Milling Cutters.....	5¢	Average Reduction		35
37.	Commercial Purchase Forms.....	5¢	Thousands	3	
38.	Sand Lime Brick (Length, Width, and Height).....	5¢	14	3	79
39.	Dining Car Chinaware.....	5¢	700	113	84
40.	Hospital Chinaware.....	5¢	700	113	84
41.	Insecticides & Fungicides (Packages).....	5¢	38	21	45
42.	Paper Grocers Bags.....	5¢	6,280	4,700	25
43.	Paint and Varnish Brushes.....	5¢	480	138	71
44.	Box Board Thicknesses.....	5¢	244	60	75
45.	Grinding Wheels.....	10¢	715,200	255,800	64
46.	Tissue Paper (Roll Tissue).....	5¢	13	3	77
	Shoe Tissue.....		21	6	72
47.	Cut Tacks and Small Cut Nails				
	Sizes.....	5¢	428	181	58
	Packing Weights.....		423	121	71
48.	Shovels, Spades, and Scoops.....	5¢	5,136	2,178	57
49.	Sidewalk Lights (Sizes).....	5¢	120	6	95
	Styles.....		80	5	94
	Shapes.....		10	2	80
50.	Checks, Notes, Etc.....	5¢	Thousands	One size for each instrument	
51.	Die Head Chasers (For Self-Opening and Adjustable Die Heads).....	5¢			75
53.	Steel Reinforcing Spirals.....	5¢	7	3	58
54.	Sterling Silver Flatware.....	5¢	190	62	67
55.	Tinware, Galvanized & Japanned Ware.....	5¢	1,154	873	24
57.	Wrought Iron and Wrought Steel Pipe,				
	Valves, and Pipe Fittings.....	5¢			
	Sizes of Valves and Fittings.....		20,000	19,238	4
	Sizes of Pipe.....		62	49	21
58.	Classification of Iron and Steel Scrap.....	10¢			

## SIMPLIFIED PRACTICE RECOMMENDATION IN PROCESS OF ACCEPTANCE

S. P. R. No.	Item	Reduction in Varieties		Per Cent
		From	To	Reduction
*10	Milk and Cream Bottles and Bottle Caps First Revision.....	78	4	95
*52.	Staple Vitreous China Plumbing Fixtures.....	441	58	87
*56.	Carbon Brushes & Brush Shunts.....	Indeterminable		



S. P. R. No.	Item	Reduction in Varieties		Per cent
		From	To	Reduction
*59.	Rotary Cut Lumber Stock for Wirebound Boxes.....			
	Length.....	102	6	94
	Width.....	65	6	91
	Thickness.....	9	6	33
*61.	White Glazed Tiles and Unglazed Ceramic Mosaic.....			
*62.	Metallic Cartridges.....	348	256	26

#### PUBLICATIONS OF AMERICAN MARINE STANDARDS COMMITTEE

American Marine Standard Com. No. 1 - Organization of the American Marine Standards Committee, Its Constitution and Rules.....	5¢
American Marine Standards Committee - Stability & Loading of Ships (out of print)	
*Mooring Bitts - Cast Iron.	
*Mooring Bitts - Cast Steel.	
*General Instructions for Operation, Care, and Upkeep of Scotch Type Marine Boilers.	
*Specifications for Pressure and Vacuum Gauges for Ships.	
*Essential Machinery Spare Parts, Accessories and Supplies for Sea-Going Ships.	
*General Instructions for Operation, Care, and Upkeep of Water Tube Marine Boilers.	
*Equipment and Methods for Safety on Ships.	
*Kinds and Sizes of Hose for Ship Equipment.	
*Specification for 3/4" and 2" Flexible Metallic Hose.	
*Specification for 2 1/2" Unlined Linen Fire Hose.	
*Instructions for Care and Maintenance of Steel Hulls.	
*Distinctive Markings for Piping.	
*Glass for Air Ports and Fixed Lights.	
*Fixed Lights for Ships.	
*Kinds and Sizes of Mattresses and Pillows and Woolen, Linen, and Cotton Articles for Ship Equipment.	
*Kinds and Sizes of Glassware for Ship Equipment.	
*Kinds and Sizes of Silverware for Ship Equipment.	

#### OTHER PUBLICATIONS

Limitation of Variety Recommendation No. 1 - Paint and Varnish.....	5¢
Simplified Practice--What It Is and What It Offers.....	10¢
A Primer of Simplified Practice.....	15¢

